

REMARKS

The Examiner is thanked for the thorough examination of the application. The Specification has been amended to improve the language and to correct minor errors.

Status Of The Claims

Claims 1-18 are pending in the application. The claims have been amended to improve their language. Claim 18 recites subject matter cancelled from claim 10.

Priority and Oath/Declaration

The Examiner asserts that the claim to priority is unclear due to a disparity between the Declaration filed May 25, 2004 and the letter that accompanied the Declaration.

The Applicants wish to confirm that the application claims priority of Chinese Application Nos. 02148785.5 and 02148786.3. A substitute Declaration that clearly sets forth the priority information will follow.

The Specification

The Examiner objects to the specification as not being written in standard English. The specification has been amended to improve the English and format.

The Examiner additionally objects to the use of the word “electropositive” in the application. However, the applicants note that the expression “electropositive” in the present application should mean “zeta potential is positive”, which is correspondingly disclosed at page

5, lines 26-30, of the specification. Thus, those skilled in the art can understand said expression according to the disclosure contained in the specification. Moreover, “electropositive”, “electronegative” and similar terms have been widely used in the mainland of China, and those skilled in the drilling industry can clearly understand said terms. Also, and applicant may be his or her own lexicographer. *See In re Paulsen*, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). *See also* MPEP 2111.01(III).

Also, the Examiner asserts that there is confusion between zeta, potential, positive charge and overall positive charge. This point will be discussed in the discussion of the claim objections, below.

The Examiner also desired more information about “Drilling Fluid Testing Criterion Issued by Department of Petroleum.” Attached, please find a copy of Drilling Fluid Test Procedure issued by the former Department of Petroleum of P.R.C. (which, having the Standard No. ZB/T E13 004-90, was issued by Department of Energy of P.R.C on February 27, 1990, and entered into force as of July 1, 1990), and is the standard drilling fluid testing method generally accepted in China.

Claim Objections

The Examiner objects to use of the word “electropositive” to describe well treating fluid. However, as noted above, the word “electropositive” is known in the art. Also the claims have been amended to recite “a mud-building agent for imparting a positive zeta potential to the

production well treating fluid” (see, e.g., claim 2) so as to better set forth the relationship between the electropositive well treating fluid and its components.

The claims have also been amended to improve their overall language, for example, is setting forth Markush language.

Rejections Under 35 U.S.C §112 and §101

The Examiner rejects claims 1, 2-15 and 17 under 35 U.S.C §112, second paragraph, as being indefinite. The Examiner rejects claim 16 under 35 U.S.C §112, fifth paragraph as being an improper multiple dependent claim. The Examiner rejects claim 17 under 35 U.S.C §101 as being a non-statutory use claim. Applicants traverse.

The Examiners comments have been considered with regard to the terms “containing,” “at least a” and “balance is water,” and the claims have been appropriately amended.

Also, the claims have been amended to remove improper multiple dependencies.

Claim 17 has been amended to be a statutory method claim.

The claims are therefore clear, definite, have full antecedent basis and are covered by statute. These rejections are overcome and withdrawal thereof is respectfully requested.

Prior Art Rejections Based on GB '294

The Examiner has rejected claims 1-8 and 11-15 under 35 U.S.C. §102(b) as being anticipated by GB '294 (GB 2245294). The Examiner has rejected claims 1-8 and 10-15 are rejected under 35 U.S.C. §103(a) as being obvious over GB '294 in view of Lauzon (U.S. Patent 4,507,210) and Khalafalla (U.S. Patent 4,765,415). The Examiner has rejected claims 1-8 and 11-15 are rejected under 35 U.S.C. §103(a) as being obvious over GB '294 in view of Patel (U.S. Patent 5,350,740). Applicants traverse.

The present invention pertains to an electropositive production well treating fluid that includes the following features: at least one cationic fluid loss additive with a content of 0.05-5% by weight; at least one cationic viscosifier with a content of 0.05-5% by weight; and water (claim 1). The present invention may further contain a mud-building agent for imparting a positive zeta potential to the production well treating fluid (claim 2).

Generally speaking, in the drilling technical field, the main objective of the addition of cationic starch (corresponding to one of the cationic fluid loss additives in claim 1 of the present invention) into the drilling fluid is to function as an inhibitor and a flocculant, so as to inhibit the dispersion expansion of shales and reduce the amount of the fluid loss thereof, rather than improve the performance of the drilling fluid by increasing the zeta potential of the drilling fluid.

In GB '294, addition of cationic starch into the drilling fluid is to inhibit the dispersion expansion of shales in the drilling wells, and the addition of water soluble polyamides and water soluble metal salts at the same time is to improve the performance of the cationic starch.

GB '294 fails to disclose or suggest increasing the zeta potential of the drilling fluid (to achieve a positive zeta potential) to achieve electropositivity.

In addition, Example 3 (in which a cationic polyamide is added) is deemed as less preferable in GB '294 (see page 5, lines 11-12), which shows that GB '294 does not have any intention to increase the zeta potential of the drilling fluid. GB '294 thus teaches away from the present invention.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997).

At pages 6 and 7 of the Office Action, the Examiner asserts that GB '294 teaches electropositive fluids. Although the claims of GB '294 do not mention that drill solids are necessarily added as the essential component, it is inevitable to add drill solids into the drilling fluid in view of the disclosure of GB '294, particularly the examples disclosed therein, in combination with the technical background of GB '294. If drill solids are added into the drilling fluid, the zeta potential is necessarily negative, even if a sufficient amount of cationic polyamides are added into the drilling fluid. This can be confirmed simple testing.

Thus, the drill solids are the implicitly-disclosed essential components in the drilling fluid of GB '294. However, in the present invention, the technical effects as expected (see, e.g.,

Example 1) can also be achieved even if the production well treating fluid is composed of only the three components as disclosed in claim 1, and not including drill solids.

That is to say, there is no teaching or suggestion in GB '294 that would motivate one of ordinary skill in the art to achieve the better technical effects even if drill solids are not added into the production well treating fluid. The present invention is achieved just by overcoming such a technical prejudice of using drill solids. The present invention is thus totally different from GB '294 in the zeta potential (which is positive) or the composition thereof.

As a result, GB '294 fails to anticipate the present invention of claims 1-8 and 11-15. GB '294 also fails to be the basis of a *prima facie* case of obviousness. The teachings of Lauzon, Khalfalla and Patel fail to address the deficiencies of GB '294, and a case of *prima facie* obviousness has thus not been made over GB '294 with Lauzon, Khalfalla (and Patel)

Yet further, the present invention shows unexpected results that would rebut any case of obviousness that could be made. These results are set forth in Examples 1-16 in the specification. As further evidence of unexpected results, the inventors have prepared an additional example 17, which is set forth below.

Example 17

A drilling fluid was prepared by using the same method as in Example 1 in the specification with the components as follows:

3% electropositive mud-building agent,

1% cationic fluid loss additive JS,

4% organo-electropositive gel BPS, and

1% cationic starch DFD-140.

Upon testing, it shows that the zeta potential of said drilling fluid is 58.1 mV.

Example 17 can be presented in the form of a Declaration, if the Examiner desires.

Therefore, the present invention shows a clear advance in technology over the conventional art. Claim 1 of the present invention is thus clearly patentable over the cited art references. Claims depending upon claim 1 are patentable for at least the above reasons.

These rejections are overcome and withdrawal thereof is respectfully requested.

Prior Art

The prior art cited but not utilized by the Examiner indicates the status of the conventional art that the invention supercedes. Additional remarks are accordingly not necessary.

Conclusion

The Examiner's objections and rejections have been overcome, obviated or rendered moot. No issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

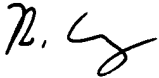
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner, Ph.D. (Reg. No. 42,593) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Application No. 10/719,235
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

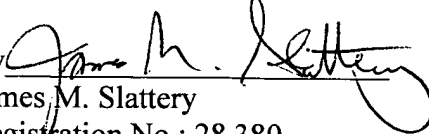
Docket No.: 0789-0155P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: March 2, 2006



Respectfully submitted,

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Attachments:

Substitute Abstract
Drilling Fluid Test Procedure